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45269

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03/23/2009

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP

1279 OAKMEAD PARKWAY

SUNNYVALE, CA 94085-4040

EXAMINER

FIELDS, COURTNEY D

ART UNIT

PAPER NUMBER

2437

DATE MAILED: 03/23/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,337	01/27/2004	Derek L. Davis	42P6514C	3287

TITLE OF INVENTION: CIRCUIT AND METHOD FOR PROVIDING SECURE COMMUNICATIONS BETWEEN DEVICES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	06/23/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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45209 7590 03/23/2009

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10766,337 01/27/2004 Derek L. Davis 42P6514C 3287

TITLE OF INVENTION: CIRCUIT AND METHOD FOR PROVIDING SECURE COMMUNICATIONS BETWEEN DEVICES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	06/23/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
FIELDS, COURTNEY D	2437	713-169000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
 Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 708 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 708 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/766,337

Examiner

COURTNEY D. FIELDS

Applicant(s)

DAVIS, DEREK L.

Art Unit

2437

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12 January 2009.
2. ☒ The allowed claim(s) is/are 2-11, 13-19 and 22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney William W. Schaal on 10 March 2009.

The application has been amended as follows:

Please amend the following claims:

2. **(Currently Amended)** A method for securing communications between a first device and a second device, the method comprising:

mutually authenticating the first device and the second device;

generating an integrity check value by the first device, wherein the generating comprises:

extracting a selected number of bits from a pseudo-random data stream for use as coefficients of a matrix having M rows and N columns, and

performing operations on both contents of the message and the

coefficients of the matrix to generate the integrity check value; and

sending the integrity check value with a message from the first device to the second device.

13. **(Currently Amended)** A method comprising:

decrypting an incoming message;

computing an integrity check value for the incoming message, the computing of the integrity check value comprises:

producing a pseudo-random data stream,
extracting a selected number of bits from the pseudo-random stream
for use as coefficients of a matrix, and
performing operations on both contents of the message and the
coefficients of the matrix to generate the integrity check value; and

determining whether the incoming message is valid by comparing the computed integrity check value with a recovered integrity check value accompanying the incoming message.

14. (Currently Amended) The method of claim 13, wherein the performing operations on both the contents of the message and the coefficients of the matrix to generate the integrity check value includes

exclusively OR'ing portions of the incoming message with a predetermined number of bits from the pseudo-random data stream.

15. (Currently Amended) The method of claim 13, wherein the performing of the operations on both the contents of the message and the coefficients of the matrix during the computing of the integrity check value includes

for the matrix having M rows and N columns, where M and N are positive whole numbers, multiplying M bit values of the message with corresponding coefficients of the N columns of the matrix to produce a plurality of resultant values; and

performing exclusive OR operations between resultant values associated with each column of the matrix to produce N bits of the integrity check value.

16. **(Currently Amended)** The method of claim ~~44~~ **13**, wherein the performing of the operations on both the contents of the message and the coefficients of the matrix during the computing of the integrity check value includes

extracting ~~a~~ **the** selected number of bits from the pseudo-random data stream to generate ~~a~~ the matrix having M rows and N columns;

multiplying M bit values of a first group of bits of the message with corresponding coefficients of the N columns of the matrix to produce a plurality of resultant values associated with each of the coefficients; and

performing exclusive OR operations between resultant values associated with each of the N columns of the matrix to produce N bits of the integrity check value.

17. **(Currently Amended)** The method of claim ~~46~~ **14**, wherein the bits associated with the selected number of bits differ from the bits associated with the predetermined number of bits.

18. **(Currently Amended)** An electronic system comprising:

a first device to generate an integrity check value and transmit the integrity check value along with a message, the first device comprises an integrity check value (ICV) generator to produce the integrity check value based on (i) a selected group of bits from a pseudo-random data stream forming coefficients of a matrix and (ii) contents of the message, and

a second device to determine whether the message has been altered by comparing a newly generated integrity check value with the integrity value recovered with a message.

19. **(Currently Amended)** The electronic system of claim 18, wherein the first device is a processor **that produces the integrity check value being a result of logical operations performed on both the contents of the message and the selected group of bits** and the second device is a memory.

DETAILED ACTION

1. Claims 2 and 13-19 have been amended.
2. Claims 2-11, 13-19, and 22 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 January 2009 has been entered.

Response to Arguments

3. Applicant's arguments filed 12 January 2009 have been fully considered and they are persuasive.

Allowable Subject Matter

4. Claims **2-11, 13-19, and 22** are allowed.

5. The following is an examiner's statement of reasons for allowance: The present invention is directed towards an electronic system and method for providing secure communications between devices through use of an integrity check value (ICV) that accompanies a message. Claims 2, 13, and 18 identifies the uniquely distinct features **"extracting a selected number of bits from a pseudo-random data stream for performing operations on both contents of the message and the coefficients of the matrix to generate the integrity check value"**.

The closest prior art, Perlman et al. (US Patent No. 6,173,400) discloses a method and system for establishing a shared secret between a plurality of devices using an authentication token. An authentication token is used to establish a shared secret between a local device and a remote device to provide user authentication, data encryption, and integrity protection. The authentication token may be used in a variety of ways to authenticate a user. First, a time-synchronized authentication token can generate a first character string that is communicated to a workstation. The workstation can manipulate the first character string to generate a second character string and send the second character string to a server. The server then compares the second character string with a plurality of possible matching character string values and determines the first character string. In another implementation, a challenge from a server can be received and processed by a challenge-response authentication token to generate a character string. The generated character string is then communicated to the workstation to establish a shared secret. A smart card may also be used to establish a shared secret between a local device and a remote device using similar techniques.

However, either singularly or in combination, Perlman et al. fail to anticipate or render obvious the claimed limitations of generating an integrity check value by the first device comprising, extracting a selected number of bits from a pseudo-random data stream for use as coefficients of a matrix having M rows and N columns, and performing operations on both contents of the message and the coefficients of the matrix to generate the integrity check value.

The closest prior art, Krawczyk, Hugo "New Hash Functions for Message Authentication" discloses a method and system which uses Toeplitz matrices generated by sequences drawn from small biased distributions provide hashing schemes applicable to secure message authentication generated by linear feedback shift registers.

However, either singularly or in combination, Krawczyk, Hugo fail to anticipate or render obvious the claimed limitations of generating an integrity check value by the first device comprising, extracting a selected number of bits from a pseudo-random data stream for use as coefficients of a matrix having M rows and N columns, and performing operations on both contents of the message and the coefficients of the matrix to generate the integrity check value.

The closest prior art, Taylor (US Patent No. 5,703,952) discloses a system for encrypting or decrypting a digital message comprising a linear driving subsystem for generating a pseudo random data sequence, a non-linear feedback subsystem for producing a cipher stream from said pseudo, random data sequence, and an encryption processor for encrypting or decrypting a message by combining it with said cipher

stream, the non-linear feedback subsystem comprising a non-linear feedback processing means for generating a feedback sequence by applying a non-linear function to at least one value from said pseudo-random data sequence and at least one previous value of the feedback sequence, and a cipher stream generating means for generating said cipher stream by summing products of pairs of values of said pseudo random data sequence together with a value from said feedback sequence, the pairs of values being chosen such that the difference in sequence position as between each member of a pair is different as between each pair.

However, either singularly or in combination, Taylor fail to anticipate or render obvious the claimed limitations of generating an integrity check value by the first device comprising, extracting a selected number of bits from a pseudo-random data stream for use as coefficients of a matrix having M rows and N columns, performing operations on both contents of the message and the coefficients of the matrix to generate the integrity check value, and determining whether the incoming message is valid by comparing the computed integrity check value with a recovered integrity check value.

The closest prior art, Patel (US Patent No. 6,327,660) discloses a system and method for securing a communication in a pre-boot environment comprising the act of providing a communication link between a first electronic system and a second electronic system. Prior to booting of an operating system of the first electronic system, the communication link is secured to protect the integrity of data transferred over the communication link.

However, either singularly or in combination, Patel fail to anticipate or render obvious because the reference does not constitute as prior art.

The closest prior art, Asano et al. (Pub No. 2002/0169971) discloses a data processing apparatus a data processing method efficiently ascertain that data are valid, prevent encryption processing key data from leaking, eliminate illegal use of contents data, restrict contents utilization, apply a different plurality of data formats to contents and efficiently execute reproduction processing of compressed data. The verification process of partial data is executed by collating the integrity partial data as check values for a combination of partial data of a content, and the verification process of the entirety of the combination of partial data is executed by collating partial-integrity-check-value-verifying integrity check values that verify the combination of the partial integrity check values. Master keys to generate individual keys necessary for a process of such as data encryption are stored in the storage section and keys are generated as required. An illegal device list is stored in the header information of a content and referred to when data is used. Keys specific to a data processing apparatus and common keys are stored and the keys are selectively used according to the content use restriction. Plural content blocks are coupled, and at least a part of the content blocks is applied to an encryption process by an encryption key Kcon, then encryption key data that is the encryption key Kcon encrypted by an encryption key Kdis is stored in the header section. A content data is made of compression data and an expansion processing program or a combination of types of compression programs and the reproducing apparatus can determine an expansion program applicable to a compressed content.

However, either singularly or in combination, Asano et al. fail to anticipate or render obvious because the reference does not constitute as prior art.

6. Therefore, **claims 2, 13, and 18** and the respective **dependent claims 3-11, 14-17, 19, and 22** are in condition for allowance.

Conclusion

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COURTNEY D. FIELDS whose telephone number is (571)272-3871. The examiner can normally be reached on Mon - Thurs. 6:00 - 4:00 pm; off every Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on 571-272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Courtney D. Fields/
Examiner, Art Unit 2437
March 10, 2009

/Matthew B Smithers/
Primary Examiner, Art Unit 2437